

REMARKS

An RCE Request is enclosed. Claims 12, 15-19, 22-26 and 29-30 are pending. Claims 12, 19 and 26 have been amended, and claims 13-14, 20-21 and 27-18 have been canceled. Claims 1-11 were canceled in a previous Amendment. No new matter has been added to the claims. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Rejection under 35 U.S.C. § 102(b)

Claims 12, 17-19 and 24-26 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent Nos. 4,938,567 (Chartier). Applicants respectfully traverse the rejection for at least the reasons set forth below.

1. Chartier does not anticipate the present invention

(i) Chartier discloses “an electro-optical panel and, more especially, an intersection point transistor structure made with thin films, wherein there is provided a doubling of the line and column electrodes (LG, CL) by doubling elements (1g₁, Col. 1, Col. 2), as well as a light barrier (EC) shielding a transistor.” (Abstract.) “These advantages are redundancy in lines and columns which are doubled to avoid breaks, double insulation at the intersection of the lines and columns with a silicon pad, if necessary, as a reinforcement.” (Column 2, lines 29-32) (Emphasis added.) Chartier does not disclose, teach or suggest the use of multi-layered wires to reduce the resistance in a wire structure, nor does Chartier disclose, teach or suggest a larger b/a ratio to reduce the resistance of the overall wire.

Unlike the object of providing redundancy, an object of the present invention is to provide “a wire structure and a manufacturing method thereof, by using an at least two-layered wire structure to reduce the resistance of the wire.” (Paragraph [0006], lines 1-4 of the published specification) (Emphasis added.) Table 2 of the published specification shows the relationship between a ratio of the length of the branch line 202 to the width of the fillister 206 and an overall resistance. Furthermore, it is indicated that “in the double-layered, tooth-like wire structure of the present invention, when the proportion of the branch line 202 parallel to the main line 200

increases, i.e. the ratio b/a increases, the resistance of the overall wire decreases." (Paragraph [0028], lines 7-10) (Emphasis added.)

(ii) In Chartier, each of transistors is disposed on a corresponding gate line (see, for example, Figs. 2, 6 and 12), which squeezes the space for a corresponding line electrode portion lg1. As a result, the length of the corresponding line electrode portion lg1 is limited while the distance between two immediately adjacent line electrode portions is relatively large. In other words, the b/a ratio of the wire structure in Chartier is relatively small.

Unlike Chartier, each of transistors 402 (see, for example, Fig. 9) of the present invention is disposed near an intersection of a corresponding gate line and a corresponding data line, and not disposed on the gate line or data line. As a result, greater b/a ratio values, ranging from 2 to 9, can be obtained in the gate line and data line in the present invention, as compared to Chartier. Chartier therefore does not provide the advantages of the present invention.

2. Each independent claim recites the features of the present invention and thus each independent claim is patentable over Chartier

The independent claims of the present invention were amended to recite the above features. Specifically, claims 12, 19 and 26 were amended to recite that "a first ratio of the first length to the first distance and a second ratio of the second length to the second distance are greater than approximately 2 in order to reduce the resistance of the multi-layered complementary wire structure." Since Chartier does not disclose each and every element in claims 12, 19 and 26, Chartier cannot anticipate any of these independent claims. Furthermore, claims 19 was amended to recite that "each of the plurality of transistors is disposed near an intersection of a gate line extending in a first direction and a data line extending in a second direction orthogonal to the first direction and not disposed on the gate line or data line." which further distinguishes the present invention from Chartier.

3. Patentability of dependent claims

The dependent claims are believed to be patentable because they depend from allowable independent claims and because they recite additional patentable features. Accordingly, the rejection of claims 12, 17-19 and 24-26 under 35 U.S.C. § 102(b) should be withdrawn.

Rejection under 35 U.S.C. § 103(a)

Claims 13-16, 20-23 and 27-29 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Chartier in view of Irwin, Jr. et al. (hereafter, "Irwin") Applicants respectfully traverse and request withdrawal of the rejection as it pertains to the amended set of claims.

1. Chartier cannot achieve the b/a range in view of Irwin as proposed by the Examiner

Irwin's invention is directed to determination of the authenticity and integrity of various types of documents such as lottery tickets by using an electronic verification machine to compare data contained in electronic circuits printed on a document to document data printed on the document. Irwin obviously teaches away from the present invention. In Irwin, the rule that the resistance is inversely proportional to the area is disclosed in Col. 27, lines 1-7. However, it would not have been obvious to a person of ordinary skill in the art at the time the present invention was made to achieve the range 2 to 9 in Chartier in view of the rule disclosed in Irwin. As previously described, in Chartier's invention each transistor occupies a considerable space on a gate line and therefore leaves a limited space for a corresponding redundant line lg1 to be formed over the gate line, resulting in a relatively small b/a ratio.

2. Neither Chartier nor Irwin, nor Chartier in view of Irwin disclose or suggest the claimed features of the present invention

The prior art references, either independent or combined, do not teach or suggest all the claim limitations in the amended set of claim.

Accordingly, the rejection of claims 13-16, 20-23 and 27-29 under 35 U.S.C. § 103(a) should be withdrawn.

Conclusion

Insofar as the Examiner's rejections were fully addressed, the instant application, including claims 12, 15-19, 22-26 and 29-30, is in condition for allowance. A Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

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